THE CORNELL REPORT

PRODUCTIVITY IN GROCERY DISTRIBUTION CENTERS

1979

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CORNELL GROCERY DISTRIBUTION CENTER
PRODUCTIVITY REPORT
1979

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INTRODUCTION

The 1979 Grocery Distribution Center Productivity Report is a continuation of the annual Cornell warehouse efficiency series. This Report is intended primarily for warehouse managers who wish to (1) evaluate the physical productivity of their operations by comparison to the performance of similar warehouses and (2) identify areas of warehouse functions which may be contributing to suboptimal performance. This Report lists participating warehouses ranked on the basis of units per man hour for the total warehousing function and separately for each of six operating areas: truck receiving, rail receiving, storing, replenishment, order selection, and shipping. The 28 participants in this Report who are identified with a confidential code number include three wholesaler warehouses and twenty-five operated by chains. This group includes a wide range of warehouse sizes from 84,000 to 501,000 square feet and 24 to 295 employees. Volume data are based on a four-week reporting period from October 15 through November 10, 1979.

Revisions for 1979

Productivity Rankings

The use of ranking based on units per man hour represents a departure from the quartile system employed in recent years. The ranking format has been adopted because it is considered to be more straight forward to interpret. The rankings are established for total warehouse operations as well as for each functional area so that management may identify which of their functions is particularly productive or unproductive compared to the sample of the participant warehouses. Rankings are based on cases per man hour rather than tons because the tonnage data on occasion appeared inconsistent.

For those users who find the quartile reporting procedure to be valuable the most important aspects are retained in the summary statistics at the bottom

of each table. These statistics contain along with the mean, median and range the high and low quarter figures. These figures represent the two warehouses whose productivities rank above 75% of the sample (i.e., high quarter) and below 75% of the sample (i.e., low quarter) respectively.

Non-Ranked Participants

In several cases it was not possible to rank individual participants on each table. Instead they are included in a separate non-ranked group just below the main tables. Non-ranking was necessary if some data were missing or if a warehouse was identified by the data screening program as lying outside the expected range. Another situation leading to non-ranking was the use of a different technology such as automated selection which would provide an inappropriate comparison with conventional selection operations. In most cases a participant will be unranked in only one or two functional areas. The values from the non-ranked warehouses are not included in calculating the summary statistics reported at the bottom of each page.

Additions and Uses

Additional information on operating characteristics was added this year to assist in the identification of "like" warehouses for comparison. Data on absenteeism (average = 3.4%), employee turnover (average = 12.9%) and union contract provisions may aid in assessing personnel policies. Each operating section contains data on employees per supervisor, overtime hours and performance standards. Objective based work scheduling (i.e., short interval scheduling) has been applied to order selection in several warehouses, but the use of incentives by the warehouses in the sample is extremely limited.

For the first time storage and replenishment are addressed separately in the report. In addition to traditional storage practices new information is

provided on storage capacity utilization. The range of percent of capacity filled was 36% to 125% while average storage density was 6 cases per square foot of floor space. The replenishment section contains new information on cases per pallet (average = 45), replenishment/stored ratio and slotting priorities.

Buying policies which indirectly affect warehouse productivity are reflected in the physical inventory turnover rate. This figure is based on the physical movement data for the four-week reporting period and may differ somewhat from the annual calculation which is typically made using accounting data.

The receiving and shipping sections contain additional information on facilities, unitization, loading and unloading procedures, labor and scheduling. Because of the importance of checking in receiving and shipping the productivity standards are based on total labor (direct plus indirect) rather than simply direct labor as used in the other functional areas. In all cases the definitions of the labor and volume figures have not changed since previous years so that this year's results are directly comparable with those from previous Reports.

TRENDS

Analyzing warehouse productivity during the past five years, there has been little change in productivity in all areas except shipping and truck receiving.

PRODUCTIVITY RATIOS 1975 - 1979

Functional Area	Median Cases Per Man Hour				
	1975	1976	1977	1978	1979
Truck Receiving (TLH)	586	558	424	488	645
Rail Receiving (DLH)	245	243	238	227	242
Storing (DLH)*	468	391	485	449	564
Replenishment (DLH)	---	---	---	---	505
Order Selection (DLH)	133	150	137	147	159
Shipping (TLH)	490	423	499	687	826

*Storing and replenishment were combined prior to 1979
DLH: Direct Labor Hours
TLH: Total (direct plus indirect) Labor Hours

Improvements in these functions may have come about from better scheduling, greater unitization, more mechanization and order selector loading. The participating warehouses have, however, changed over the period so that apparent trends may be due simply to the differences in the sample. When analyzing the 1979 data it is important to recognize that the data screening and format programs have gone through substantial revisions this year. Thus although every precaution has been taken it is possible that errors remain and are reflected in the reported figures.

Comments regarding any errors or the content of this report are appreicated (607) 256-4595.

TABLE I.1

SELECTED MEASURES OF PRODUCTIVITY
RANKED BY TOTAL WAREHOUSE THROUGHPUT PER DIRECT LABOR HOUR

COMMODITY - DRY GROCERY

IDENT.	RANK	UNITS PER MAN-HOUR DIR LABOR	TONS PER MAN-HOUR DIR LABOR	UNITS PER MAN-HOUR TOT LABOR	TONS PER MAN-HOUR TOT LABOR	UNITS (X1000)	TONS (X1000)
27	1	437	6.10	N/A	N/A	6650.6	92.92
26	2	427	7.47	N/A	N/A	4766.1	83.40
22	3	426	4.93	278	3.21	2383.9	27.59
21	4	419	4.81	256	2.94	1987.1	22.77
13	5	399	4.52	287	3.24	1362.8	15.41
19	6	396	5.55	288	4.03	6097.9	85.37
8	7	382	4.83	218	2.76	1394.8	17.62
20	8	357	4.32	N/A	N/A	5511.8	66.79
12	9	352	4.66	N/A	N/A	3929.4	52.10
15	10	348	4.53	N/A	N/A	4962.9	64.56
1	11	313	4.37	N/A	N/A	4687.8	65.44
6	12	311	3.80	206	2.52	2577.8	31.51
28	13	298	4.46	N/A	N/A	6023.6	90.35
10	14	290	3.58	N/A	N/A	5439.8	67.33
3	15	279	3.53	211	2.67	2237.0	28.31
14	16	196	2.56	142	1.86	4484.6	58.61
NOT RANKED:							
2	***	****	****	****	****	****	****
4	***	****	****	****	****	****	****
11	***	****	****	****	****	****	****
9	***	****	****	****	****	****	****
17	***	****	****	****	****	****	****
18	***	****	****	****	****	****	****
16	***	****	****	****	****	****	****
23	***	****	****	****	****	****	****
25	***	****	****	****	****	****	****
5	***	****	****	****	****	****	****
24	***	****	****	****	****	****	****
7	***	****	****	****	****	****	****
	MEAN	352.	4.63	236.	2.90	4031.1	54.38
	LOW	196.	2.56	142.	1.86	1362.8	15.41
	LC QTR	311.	4.32	211.	2.67	2383.9	28.31
	MEDIAN	357.	4.53	256.	2.94	4687.8	64.56
	HI QTR	419.	4.93	287.	3.24	5511.8	83.40
	HIGH	437.	7.47	288.	4.03	6650.6	92.92

TABLE I.2 SELECTED MEASURES OF PRODUCTIVITY — COMMODITY - DRY GROCERY

RANKED BY TOTAL WAREHOUSE THROUGHPUT PER DIRECT LABOR HOUR

IDENT.	THROUGHPUT RANK	THROUGHPUT UNITS PER MAN-HOUR DIR LABOR	TRUCK RECEIVING RANK	TRUCK RECEIVING CASES PER MAN-HOUR TOT LABOR	TRUCK RECEIVING TONS PER MAN-HOUR TOT LABOR	RAIL RECEIVING RANK	RAIL RECEIVING CASES PER MAN-HOUR TOT LABOR	RAIL RECEIVING TONS PER MAN-HOUR TOT LABOR
27	1	437	18	518	7.35	2	518	7.35
26	2	427	23	361	6.81	16	171	3.00
22	3	426	22	399	5.31	19	154	2.30
21	4	419	12	586	7.93	13	220	3.40
13	5	399	3	1064	11.75	21	143	2.00
19	6	396	4	1045	14.63	4	343	4.81
8	7	382	26	280	3.65	25	125	3.22
20	8	357	10	678	8.64	18	165	2.40
12	9	352	11	670	8.42	17	168	2.69
15	10	348	24	303	3.88	7	302	3.72
1	11	313	27	280	4.09	20	151	2.05
6	12	311	16	525	6.83	3	394	5.43
28	13	298	21	423	6.35	11	247	3.70
10	14	290	13	576	7.36	22	141	1.91
3	15	279	5	1040	12.92	23	127	1.58
14	16	196	25	291	3.82	9	262	3.56
NOT RANKED:								
2	***	****	6	984	11.18	12	233	3.41
4	***	****	2	1164	15.14	10	260	3.38
11	***	****	15	545	7.78	6	305	4.35
9	***	****	9	692	9.13	26	116	1.60
17	***	****	19	470	6.90	14	219	2.70
18	***	****	8	821	10.62	24	125	2.16
16	***	****	***	****	****	***	****	****
23	***	****	7	824	11.35	15	206	2.77
25	***	****	14	545	N/A	8	295	N/A
5	***	****	17	523	6.54	5	315	3.93
24	***	****	1	1366	17.53	1	585	N/A
7	***	****	20	424	6.78	***	****	****
	MEAN	352.		645.	8.55		242.	3.23
	LOW	196.		280.	3.65		116.	1.58
	LO QTR	311.		423.	6.35		151.	2.30
	MEDIAN	357.		549.	7.78		220.	3.22
	HI QTR	419.		824.	11.35		303.	3.72
	HIGH	437.		1366.	17.53		585.	7.35

TABLE I.3 SELECTED MEASURES OF PRODUCTIVITY — COMMODITY - DRY GROCERY

RANKED BY TOTAL WAREHOUSE THROUGHPUT PER DIRECT LABOR HOUR

IDENT.	THROUGHPUT		SIZING			REPLENISHMENT		
	RANK	UNITS PER MAN-HOUR DIR LABOR	RANK	CASES PER MAN-HOUR DIR LABOR	TONS PER MAN-HOUR DIR LABOR	RANK	CASES PER MAN-HOUR DIR LABOR	TONS PER MAN-HOUR DIR LABOR
27	1	437	1	1725	24.47	8	546	7.55
26	2	427	11	504	8.82	9	531	9.29
22	3	426	14	448	6.12	4	803	8.39
21	4	419	15	394	5.48	10	522	5.36
16	5	396	9	585	6.69	11	497	5.34
19	6	396	23	275	3.85	6	636	8.90
8	7	382	6	616	9.15	2	825	9.22
20	8	357	10	578	7.59	7	566	6.71
12	9	352	8	587	7.78	14	448	5.94
15	10	348	19	335	4.25	13	457	6.05
1	11	313	4	916	13.22	1	948	12.90
6	12	311	17	370	4.89	20	195	2.03
28	13	298	13	451	6.76	16	338	5.07
10	14	290	16	389	5.00	19	273	3.29
3	15	279	21	293	3.64	18	276	3.30
14	16	196	20	324	4.27	21	81	1.06
NOT RANKED:								
2	***	****	7	598	7.09	***	****	****
4	***	****	24	201	2.62	***	****	****
11	***	****	12	475	6.78	***	****	****
9	***	****	2	1033	13.69	17	332	5.16
17	***	****	***	****	****	***	****	****
18	***	****	5	804	10.45	3	804	5.82
16	***	****	3	893	11.17	5	674	8.94
23	***	****	***	****	****	***	****	****
25	***	****	***	****	****	12	480	N/A
5	***	****	22	276	3.45	***	****	****
24	***	****	18	362	N/A	15	357	N/A
7	***	****	***	****	****	***	****	****
	MEAN	353.		564.	7.71		505.	6.33
	LOW	196.		201.	2.62		81.	1.06
	LO QTR	311.		362.	4.27		332.	5.07
	MEDIAN	357.		475.	6.76		497.	5.94
	HI QTR	419.		616.	9.15		674.	8.90
	HIGH	437.		1725.	24.47		948.	12.90

TABLE I.4

SELECTED MEASURES OF PRODUCTIVITY
RANKED BY TOTAL WAREHOUSE THROUGHPUT PER DIRECT LABOR HOUR

COMMODITY - DRY GROCERY

IDENT.	THROUGHPUT		ORDER SELECTION			SHIPPING		
	RANK	UNITS PER MAN-HOUR DIR LABOR	RANK	CASES PER MAN-HOUR DIR LABOR	TONS PER MAN-HOUR DIR LABOR	RANK	CASES PER MAN-HOUR TOT LABOR	TONS PER MAN-HOUR TOT LABOR
27	1	437	12	152	2.11	5	1239	17.12
26	2	427	4	190	3.32	18	706	12.36
22	3	426	3	190	1.99	12	814	8.51
21	4	419	2	199	3.04	7	1051	10.72
13	5	399	15	147	1.58	10	925	11.35
19	6	396	9	170	2.38	14	727	10.18
8	7	382	6	183	2.04	16	709	7.92
20	8	357	16	144	1.65	11	898	10.29
12	9	352	19	137	1.81	20	511	6.78
15	10	348	5	188	2.49	19	675	8.94
1	11	313	17	142	1.94	25	292	3.96
6	12	311	10	164	1.71	5	1239	16.88
28	13	298	22	124	1.85	23	367	5.50
10	14	290	21	128	1.54	17	706	8.52
3	15	279	13	150	1.79	22	448	6.27
14	16	196	23	106	1.38	4	1322	17.19
NOT RANKED:								
2	***	****	11	155	1.55	3	1521	15.17
4	***	****	18	139	1.80	13	749	7.47
11	***	****	8	173	2.47	27	120	1.72
9	***	****	***	****	****	24	341	5.31
17	***	****	14	147	1.92	2	1690	22.07
18	***	****	***	****	****	26	264	3.43
16	***	****	20	131	1.74	1	1880	24.94
23	***	****	7	178	2.04	21	504	5.77
25	***	****	***	****	****	9	934	N/A
5	***	****	***	****	****	15	725	9.07
24	***	****	***	****	****	***	****	****
7	***	****	1	224	3.59	8	941	15.06
	MEAN	352.		159.	2.05		826.	10.48
	LOW	196.		106.	1.38		120.	1.72
	LO QTR	311.		139.	1.71		504.	6.27
	MEDIAN	357.		152.	1.94		727.	9.07
	HI QTR	419.		183.	2.38		1051.	15.17
	HIGH	437.		224.	3.59		1880.	24.94

TABLE I.5 SELECTED WAREHOUSE CHARACTERISTICS COMMODITY - DRY GROCERY
RANKED BY TOTAL WAREHOUSE THROUGHPUT PER DIRECT LABOR HOUR

IDENT.	THROUGHPUT RANK	THROUGHPUT UNITS PER MAN-HOUR DIR LABOR	REGION	WAREHOUSE OWNERSHIP	FLOOR AREA UTILIZED (X1000 SQ. FT.)	TOTAL ITEMS STOCKED	REPACK ITEMS	PHYSICAL INVENTORY TURNOVER (4 WEEKS)	EMPLOYEES MR.	EMPLOYEES SUP.
27	1	437	MW	RETAIL	383	3546	0	1.53	159	7
26	2	427	NE	RETAIL	199	5176	0	1.45	86	6
22	3	426	S	RETAIL	118	5700	616	2.14	56	4
21	4	419	S	RETAIL	174	6300	900	1.82	60	8
13	5	399	NE	RETAIL	128	4462	492	2.07	38	2
19	6	396	NE	RETAIL	421	4876	936	0.93	198	9
8	7	382	MW	RETAIL	84	5525	610	0.97	39	3
20	8	357	MW	RETAIL	251	4887	611	1.67	116	7
12	9	352	MW	RETAIL	149	3499	0	1.51	81	6
15	10	348	MW	RETAIL	370	4017	518	1.03	114	11
1	11	313	W	RETAIL	300	3600	0	1.50	136	5
6	12	311	S	RETAIL	232	5900	572	1.35	101	7
28	13	298	MW	RETAIL	221	4647	0	0.96	206	11
10	14	290	S	RETAIL	362	5637	800	1.40	195	19
3	15	279	S	RETAIL	170	4899	631	1.09	78	9
14	16	196	NE	RETAIL	293	6800	216	0.99	205	9
NOT RANKED:										
2	***	****	NE	RETAIL	93	5709	494	1.96	78	3
4	***	****	NE	WHOLESALE	193	6700	900	1.33	175	10
11	***	****	NE	RETAIL	0	4400	220	2.33	194	11
9	***	****	S	WHOLESALE	90	N/A	N/A	N/A	24	2
17	***	****	S	WHOLESALE	163	4741	0	1.12	85	8
18	***	****	NE	RETAIL	240	6858	1693	1.45	103	8
16	***	****	MW	RETAIL	261	4744	397	0.76	55	3
23	***	****	S	RETAIL	202	6078	845	N/A	76	5
25	***	****	W	RETAIL	501	6500	0	N/A	295	30
5	***	****	NE	RETAIL	242	4800	483	1.10	74	5
24	***	****	NE	RETAIL	150	5000	600	N/A	58	3
7	***	****	S	RETAIL	100	2691	0	0.87	47	6
	MEAN	352.			226.	5100.	464.	1.39	115.	8.
	LOW	196.			84.	2691.	0.	0.76	24.	2.
	LO QTR	311.			149.	4462.	0.	1.03	76.	5.
	MEDIAN	357.			202.	4899.	494.	1.40	98.	7.
	HI QTR	419.			293.	5900.	631.	1.67	175.	9.
	HIGH	437.			501.	6858.	1693.	2.33	295.	30.

TABLE I.6

SELECTED WAREHOUSE CHARACTERISTICS
RANKED BY TOTAL WAREHOUSE THROUGHPUT PER DIRECT LABOR HOUR

COMMODITY - DRY GROCERY

IDENT.	THROUGHPUT RANK	THROUGHPUT UNITS PER MAN-HOUR DIR LABOR	ANNUAL % EMPLOYEE TURNOVER HR.	ANNUAL % EMPLOYEE TURNOVER SUP.	ABSENCE PERCENT	UNION	JOB ASSIGNMENT	GUARANTEED HRS DAILY	GUARANTEED HRS WEEKLY	DISCIPLINE STEPS TO ENFORCE SIDS NUMBER	DISCIPLINE STEPS TO ENFORCE SIDS IN CONTRACT
27	1	437	16.4	0.0	N/A	YES	NON-SENIORITY	8.0	40.0	4	NO
26	2	427	12.8	0.0	N/A	YES	SENIORITY	8.0	40.0	5	NO
22	3	426	7.1	0.0	1.86	YES	SENIORITY	8.0	40.0	6	NO
21	4	419	16.7	25.0	2.55	YES	SENIORITY	8.0	40.0	6	NO
13	5	399	34.2	50.0	0.32	YES	SENIORITY	8.0	40.0	6	NO
19	6	396	1.5	11.1	5.71	YES	NON-SENIORITY	8.0	40.0	6	NO
8	7	382	10.3	0.0	N/A	YES	SENIORITY	8.0	40.0	3	NO
20	8	357	2.6	0.0	0.01	YES	SENIORITY	8.0	40.0	6	NO
12	9	352	2.5	0.0	7.73	YES	SENIORITY	8.0	40.0	5	NO
15	10	348	32.5	45.5	7.47	YES	NON-SENIORITY	8.0	40.0	6	YES
1	11	313	2.9	0.0	2.42	YES	SENIORITY	8.0	40.0	5	NO
6	12	311	21.8	42.9	5.95	YES	SENIORITY	8.0	40.0	5	YES
28	13	298	2.9	27.3	0.80	YES	SENIORITY	8.0	40.0	2	NO
10	14	290	5.6	26.3	4.38	YES	SENIORITY	8.0	40.0	6	YES
3	15	279	17.9	33.3	3.68	YES	SENIORITY	8.0	N/A	4	NO
14	16	196	2.9	0.0	0.19	YES	SENIORITY	8.0	N/A	5	NO
NOT RANKED:											
2	***	****	0.0	33.3	N/A	YES	SENIORITY	8.0	40.0	3	YES
4	***	****	19.4	0.0	N/A	NO	N/A	N/A	N/A	5	N/A
11	***	****	2.1	0.0	N/A	YES	SENIORITY	8.0	40.0	5	YES
9	***	****	41.7	100.0	N/A	NO	N/A	N/A	N/A	4	N/A
17	***	****	9.4	0.0	3.52	YES	NON-SENIORITY	N/A	40.0	3	YES
18	***	****	1.9	12.5	6.37	YES	SENIORITY	N/A	N/A	6	NO
16	***	****	14.7	0.0	N/A	YES	SENIORITY	8.0	40.0	6	NO
23	***	****	31.6	0.0	2.41	YES	SENIORITY	8.0	40.0	6	NO
25	***	****	37.6	20.0	N/A	YES	SENIORITY	8.0	40.0	5	NO
5	***	****	0.0	0.0	N/A	YES	SENIORITY	N/A	N/A	6	NO
24	***	****	N/A	0.0	N/A	YES	NON-SENIORITY	N/A	N/A	3	NO
7	***	****	0.0	0.0	N/A	NO	N/A	N/A	N/A	3	N/A
	MEAN	352.	12.9	15.3	3.40			8.0	40.0	5.	
	LOW	196.	0.0	0.0	0.01			8.0	40.0	2.	
	LO QTR	311.	2.5	0.0	1.86			8.0	40.0	4.	
	MEDIAN	357.	9.4	0.0	2.55			8.0	40.0	5.	
	HI QTR	419.	19.4	27.3	5.95			8.0	40.0	6.	
	HIGH	437.	41.7	100.0	7.73			8.0	40.0	6.	

TABLE I.7

SELECTED WAREHOUSE CHARACTERISTICS
RANKED BY TOTAL WAREHOUSE THROUGHPUT PER DIRECT LABOR HOUR

COMMODITY - DRY GROCERY

IDENT.	THROUGHPUT RANK	THROUGHPUT UNITS PER MAN-HOUR DIR LABOR	1ST LINE SUPER	SWEPT LABOR HOURS - % OF TOTAL HOURS RECOOP	STOCK CONTROL	MAINT.	HOUSE-KEEPING	SECURITY	SUPPORT EMPLOYEE HRS PER SUPER HR.	RECOOP % OF TONNAGE SHIPPED
27	1	437	NONUNION	N/A	N/A	N/A	N/A	N/A	N/A	N/A
26	2	427	NONUNION	N/A	N/A	N/A	N/A	N/A	N/A	0.14
22	3	426	NONUNION	1.21	0.00	5.48	6.94	0.00	14.6	0.08
21	4	419	NONUNION	1.88	0.00	6.81	9.39	0.52	5.5	N/A
13	5	399	NONUNION	0.36	0.00	3.37	4.19	0.00	18.8	0.27
19	6	396	NONUNION	0.66	1.04	3.67	6.34	0.00	15.5	0.08
8	7	382	NONUNION	0.75	0.63	5.01	7.36	6.26	31.9	N/A
20	8	357	NONUNION	N/A	N/A	N/A	N/A	N/A	12.3	0.36
12	9	352	NONUNION	N/A	N/A	N/A	N/A	N/A	9.0	0.05
15	10	348	NONUNION	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1	11	313	NONUNION	N/A	N/A	N/A	N/A	N/A	N/A	0.16
6	12	311	NONUNION	2.49	0.82	3.73	8.22	2.35	16.9	0.13
28	13	298	NONUNION	N/A	N/A	N/A	N/A	N/A	N/A	0.09
10	14	290	NONUNION	N/A	N/A	N/A	N/A	N/A	N/A	0.09
3	15	279	NONUNION	2.55	1.23	3.01	6.62	0.00	3.7	0.10
14	16	196	NONUNION	1.51	0.24	4.68	7.08	6.03	16.0	0.08
NOT RANKED:										
2	***	****	NONUNION	N/A	N/A	N/A	N/A	N/A	N/A	0.40
4	***	****	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11	***	****	NONUNION	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9	***	****	N/A	3.31	2.42	2.75	5.67	0.00	16.3	N/A
17	***	****	NONUNION	N/A	N/A	N/A	N/A	N/A	N/A	N/A
18	***	****	NONUNION	1.56	1.89	5.66	5.72	0.00	9.4	0.36
16	***	****	NONUNION	N/A	N/A	N/A	N/A	N/A	N/A	0.12
23	***	****	NONUNION	N/A	N/A	N/A	N/A	N/A	N/A	0.40
25	***	****	NONUNION	N/A	N/A	N/A	N/A	N/A	11.3	N/A
5	***	****	NONUNION	N/A	N/A	N/A	N/A	N/A	N/A	0.01
24	***	****	NONUNION	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	***	****	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	MEAN	352.		1.63	0.83	4.42	6.75	1.52	14.0	0.18
	LOW	196.		0.36	0.00	2.75	4.19	0.00	3.7	0.01
	LO QTR	311.		0.75	0.00	3.37	5.72	0.00	9.0	0.08
	MEDIAN	357.		1.56	0.82	4.68	6.94	0.00	14.6	0.13
	HI QTR	419.		2.55	1.89	5.66	8.22	6.03	16.9	0.36
	HIGH	437.		3.31	2.42	6.81	9.39	6.26	31.9	0.40

TABLE II.1

TRUCK RECEIVING
SELECTED MEASURES OF PRODUCTIVTY AND OPERATING CHARACTERISTICS
RANKED BY CASES PER MAN-HOUR TOTAL LABOR

COMMODITY - DRY GROCERY

IDENT.	RANK	CASES PER MAN-HOUR TOT LABOR	TONS PER MAN-HOUR TOT LABOR	CASES PER MAN-HOUR DIR LABOR	TONS PER MAN-HOUR DIR LABOR	CASES (X1000)	TONS (X1000)	OPER. SCHEDULE DAYS	OPER. SCHEDULE HOURS
24	1	1366	17.53	1366	17.53	437.2	5.61	5.0	12.0
4	2	1164	15.14	4117	53.53	798.8	10.38	5.0	9.0
13	3	1064	11.75	13722	151.47	260.7	2.88	5.0	8.0
19	4	1045	14.63	4668	65.36	905.5	12.68	5.0	8.0
3	5	1040	12.92	1552	19.27	457.7	5.68	5.0	8.0
2	6	984	11.18	984	11.18	390.8	4.44	5.0	8.0
23	7	824	11.35	986	13.57	453.4	6.24	5.0	8.0
18	8	821	10.62	1240	16.03	774.5	10.01	5.0	10.5
9	9	692	9.13	1899	25.05	186.1	2.46	5.0	8.0
20	10	678	8.64	678	8.64	846.7	10.78	5.0	16.0
12	11	670	8.42	1352	16.99	661.1	8.31	5.0	8.0
21	12	586	7.93	1407	19.03	260.6	3.53	5.0	8.0
10	13	576	7.36	694	8.87	1077.5	13.77	5.0	8.0
25	14	549	N/A	1216	N/A	1459.6	N/A	6.0	8.0
11	15	545	7.78	767	10.95	1204.6	17.21	5.0	9.0
6	16	525	6.83	697	9.06	445.9	5.80	5.0	8.0
5	17	523	6.54	585	7.32	689.0	8.61	5.0	4.0
27	18	518	7.35	518	7.35	1035.1	14.69	5.0	8.0
17	19	470	6.90	470	6.90	204.8	3.01	5.0	8.5
7	20	424	6.78	424	6.78	542.6	8.68	5.0	8.0
28	21	423	6.35	539	8.08	947.8	14.22	5.0	8.0
22	22	399	5.31	743	9.90	325.1	4.33	5.0	8.0
26	23	361	6.31	1365	23.89	767.1	13.42	5.0	8.0
15	24	303	3.88	335	4.29	865.5	11.07	5.0	6.0
14	25	291	3.82	291	3.82	1102.2	14.47	5.0	16.0
8	26	280	3.65	704	9.16	237.2	3.09	5.0	8.0
1	27	280	4.09	305	4.46	825.9	12.07	5.0	10.0
NOT RANKED:									
16	***	****	N/A	N/A	N/A	763.7	8.60	5.0	8.0
	MEAN	645.	8.55	1616.	20.71	672.7	8.75		
	LOW	280.	3.65	291.	3.82	186.1	2.46		
	LC QTR	423.	6.35	539.	7.35	390.8	4.44		
	MEDIAN	549.	7.78	767.	10.95	689.0	8.68		
	HI QTR	824.	11.35	1366.	19.27	905.5	13.42		
	HIGH	1366.	17.53	13722.	151.47	1459.6	17.21		

TABLE II.2

TRUCK RECEIVING
SELECTED MEASURES OF PRODUCTIVTY AND OPERATING CHARACTERISTICS
RANKED BY CASES PER MAN-HOUR TOTAL LABOR

COMMODITY - DRY GROCERY

IDENT.	RANK	CASES PER MAN-HOUR TOT LABOR	TRUCK RECEIVING DOCK						
			LENGTH (FT)	DEPTH (FT)	% OF WAREHOUSE AREA	DOORS	CASES PER DOOR-HOUR	TONS PER DOOR-HOUR	USED FOR STORAGE
24	1	1366	135	70	6.30	12	152	1.95	YES
4	2	1164	336	46	8.02	18	247	3.20	YES
13	3	1064	140	49	5.36	13	125	1.38	NO
19	4	1045	979	40	9.30	57	99	1.39	YES
3	5	1040	144	15	1.27	11	260	3.23	NO
2	6	984	200	12	2.58	6	407	4.63	NO
23	7	824	150	40	2.97	10	283	3.90	NO
18	8	821	192	42	3.36	17	217	2.81	NO
9	9	692	130	45	6.50	10	116	1.53	NO
20	10	678	292	27	3.14	25	106	1.35	YES
12	11	670	247	38	6.31	17	243	3.06	YES
21	12	586	100	10	0.57	6	271	3.67	NO
10	13	576	725	100	20.00	48	140	1.79	NO
25	14	549	555	45	4.99	33	230	N/A	NO
11	15	545	376	42	N/A	30	223	3.19	YES
6	16	525	370	15	2.39	24	116	1.51	NO
5	17	523	120	10	0.50	12	718	8.97	NO
27	18	518	720	25	4.70	26	249	3.53	YES
17	19	470	236	33	4.78	19	63	0.93	NO
7	20	424	200	40	8.00	13	261	4.17	NO
28	21	423	290	45	5.90	23	258	3.86	NO
22	22	399	132	15	1.69	N/A	N/A	N/A	NO
26	23	361	N/A	N/A	N/A	14	342	5.99	NO
15	24	303	675	60	10.95	40	180	2.31	NO
14	25	291	N/A	N/A	N/A	38	91	1.19	YES
8	26	280	60	42	3.00	8	185	2.41	NO
1	27	280	N/A	N/A	N/A	14	295	4.31	NO
NOT RANKED:									
16	***	****	495	22	4.17	38	126	1.41	YES
	MEAN	645.	320.	37.	5.28	22.	222.	2.99	
	LOW	280.	60.	10.	0.50	6.	63.	0.93	
	LO QTR	423.	135.	15.	2.97	12.	125.	1.51	
	MEDIAN	549.	236.	40.	4.78	17.	223.	3.06	
	HI QTR	824.	495.	45.	6.50	30.	261.	3.90	
	HIGH	1366.	979.	100.	20.00	57.	718.	8.97	

TABLE II.3

TRUCK RECEIVING
SELECTED MEASURES OF PRODUCTIVTY AND OPERATING CHARACTERISTICS
RANKED BY CASES PER MAN-HOUR TOTAL LABOR

COMMODITY - DRY GROCERY

IDENT.	RANK	CASES PER MAN-HOUR TOT LABOR	RECEIVE & SHIP SAME DOCK	RECEIVE & SHIP SAME TIME	OUT OF PALLETS	CHECKING METHOD CARRIER	CHECKING METHOD BACKHAUL	APPOINTMENTS	PERCENT UNUTILIZED CARRIER	PERCENT UNUTILIZED BHAUL
24	1	1366	YES	NO	WEEKLY	ITEM	ITEM	YES	100.0	100.0
4	2	1164	YES	NO	WEEKLY	ITEM	ITEM	YES	100.0	100.0
13	3	1064	YES	NO	NEVER	ITEM	ITEM	YES	100.0	100.0
19	4	1045	YES	NO	MONTHLY	ITEM	ITEM	YES	100.0	100.0
3	5	1040	NO	N/A	DAILY	ITEM	ITEM	YES	55.8	N/A
2	6	984	NO	N/A	NEVER	COUNT	COUNT	YES	72.3	100.0
23	7	824	NO	N/A	NEVER	ITEM	ITEM	YES	67.3	100.0
18	8	821	NO	N/A	DAILY	ITEM	ITEM	YES	22.7	93.0
9	9	692	YES	YES	NEVER	ITEM	ITEM	YES	100.0	95.0
20	10	678	YES	YES	NEVER	ITEM	ITEM	YES	32.9	98.4
12	11	670	YES	NO	MONTHLY	ITEM	ITEM	YES	61.6	100.0
21	12	586	NO	N/A	NEVER	ITEM	ITEM	YES	60.0	100.0
10	13	576	NO	N/A	WEEKLY	ITEM	ITEM	YES	70.0	69.9
25	14	549	YES	NO	WEEKLY	COUNT	COUNT	YES	100.0	100.0
11	15	545	YES	YES	MONTHLY	ITEM	ITEM	YES	100.0	100.0
6	16	525	NO	N/A	WEEKLY	ITEM	ITEM	YES	40.0	95.0
5	17	523	NO	N/A	WEEKLY	ITEM	ITEM	YES	70.0	80.0
27	18	518	YES	NO	NEVER	ITEM	ITEM	YES	80.0	100.0
17	19	470	YES	YES	MONTHLY	ITEM	ITEM	NO	100.0	30.0
7	20	424	NO	N/A	NEVER	COUNT	COUNT	NO	5.6	100.0
28	21	423	NO	N/A	MONTHLY	COUNT	ITEM	YES	15.0	100.0
22	22	399	NO	N/A	NEVER	COUNT	COUNT	YES	100.0	95.1
26	23	361	NO	N/A	MONTHLY	COUNT	COUNT	YES	100.0	100.0
15	24	303	YES	NO	WEEKLY	COUNT	COUNT	YES	76.9	86.7
14	25	291	NO	N/A	MONTHLY	ITEM	ITEM	YES	73.6	98.9
8	26	280	NO	N/A	MONTHLY	ITEM	ITEM	YES	100.0	100.0
1	27	280	NO	N/A	NEVER	ITEM	ITEM	YES	95.1	100.0
NOT RANKED:										
16	***	****	NO	N/A	MONTHLY	ITEM	ITEM	YES	89.0	98.4
	MEAN	645.							74.6	94.1
	LOW	280.							5.6	30.0
	LO QTR	423.							61.6	95.0
	MEDIAN	549.							80.0	100.0
	HI QTR	824.							100.0	100.0
	HIGH	1366.							100.0	100.0

TABLE II.4

TRUCK RECEIVING
SELECTED MEASURES OF PRODUCTIVITY AND OPERATING CHARACTERISTICS
RANKED BY CASES PER MAN-HOUR TOTAL LABOR

COMMODITY - DRY GROCERY

IDENT.	RANK	CASES PER MAN-HOUR TOT LABOR	PERFORMANCE STANDARDS			INCENTIVES	SHORT INTERVAL SCHED.	EMPLOYEES PER SUPER.	O/T HOURS (% OF TOTAL)
			STANDARDS	ENG. BASED	IN CONTRACT				
24	1	1366	YES	YES	NO	NO	NO	N/A	5.6
4	2	1164	NO			NO	NO	2.9	0.0
13	3	1064	NO			NO	NO	6.1	5.5
19	4	1045	NO			NO	NO	5.1	2.2
3	5	1040	NO			NO	NO	8.3	7.5
2	6	984	YES	NO	NO	NO	NO	5.7	9.3
23	7	824	YES	YES	NO	NO	YES	3.4	18.2
18	8	821	NO			NO	NO	6.1	4.4
9	9	692	YES	NO	N/A	NO	YES	2.8	1.1
20	10	678	YES	YES	NO	NO	YES	7.8	16.1
12	11	670	NO			NO	YES	12.3	3.7
21	12	586	NO			NO	NO	2.6	1.9
10	13	576	YES	YES	NO	NO	YES	3.9	15.1
25	14	549	NO			NO	NO	3.1	9.0
11	15	545	YES	NO	NO	NO	NO	18.4	0.7
6	16	525	YES	YES	NO	NO	NO	5.3	3.7
5	17	523	NO			NO	NO	8.2	3.5
27	18	518	NO			NO	NO	12.5	9.3
17	19	470	YES	NO	NO	NO	NO	5.4	0.0
7	20	424	YES	NO	N/A	NO	NO	2.7	0.0
28	21	423	YES	YES	NO	NO	YES	7.0	0.0
22	22	399	NO			NO	NO	5.7	7.5
26	23	361	NO			NO	NO	15.2	6.9
15	24	303	NO			NO	YES	8.1	7.6
14	25	291	NO			NO	YES	16.3	9.7
8	26	280	YES	NO	NO	NO	NO	10.6	0.0
1	27	280	YES	NO	YES	NO	NO	26.3	5.8
NOT RANKED:									
16	***	****	YES	NO	NO	NO	YES	N/A	N/A
	MEAN	645.						8.2	5.7
	LOW	280.						2.7	0.0
	LO QTR	423.						3.9	1.1
	MEDIAN	549.						6.1	5.5
	HI QTR	824.						12.3	9.0
	HIGH	1366.						26.3	18.2

TABLE II.5

TRUCK RECEIVING
SELECTED MEASURES OF PRODUCTIVTY AND OPERATING CHARACTERISTICS
RANKED BY CASES PER MAN-HOUR TOTAL LABOR

COMMODITY - DRY GROCERY

IDENT.	RANK	CASES PER MAN-HOUR TOT LABOR	WHO UNLOADS AND PALLETIZES (%) UNLOADING CARRIER	UNLOADING WAREHOUSE	PALLETIZING CARRIER	PALLETIZING WAREHOUSE
24	1	1366	5	95	85	15
4	2	1164	100	0	100	0
13	3	1064	100	0	100	0
19	4	1045	100	0	100	0
3	5	1040	0	100	96	4
2	6	984	0	100	100	0
23	7	824	90	10	95	5
18	8	821	0	100	100	0
9	9	692	60	40	80	20
20	10	678	0	100	99	1
12	11	670	0	100	100	0
21	12	586	100	0	100	0
10	13	576	95	5	100	0
25	14	549	80	20	100	0
11	15	545	90	10	100	0
6	16	525	55	45	100	0
5	17	523	30	70	100	0
27	18	518	75	25	99	1
17	19	470	100	0	100	0
7	20	424	5	95	5	95
28	21	423	0	100	100	0
22	22	399	0	100	100	0
26	23	361	100	0	100	0
15	24	303	0	100	100	0
14	25	291	0	100	100	0
8	26	280	90	10	100	0
1	27	280	100	0	100	0
NOT RANKED:						
16	***	****	0	100	5	95
	MEAN	645.	49.	51.	92.	8.
	LOW	280.	0.	0.	5.	0.
	LO QTR	423.	0.	5.	99.	0.
	MEDIAN	549.	60.	45.	100.	0.
	HI QTR	824.	100.	100.	100.	1.
	HIGH	1366.	100.	100.	100.	95.

TABLE III.1

RAIL RECEIVING
SELECTED MEASURES OF PRODUCTIVITY AND OPERATING CHARACTERISTICS
RANKED BY CASES PER MAN-HOUR TOTAL LABOR

COMMODITY - DRY GROCERY

IDENT.	RANK	CASES PER MAN-HOUR TOT LABOR	TONS PER MAN-HOUR TOT LABOR	CASES PER MAN-HOUR DIR LABOR	TONS PER MAN-HOUR DIR LABOR	CASES (X1000)	TONS (X1000)	OPER. SCHEDULE DAYS	OPER. SCHEDULE HOURS
24	1	585	N/A	585	N/A	93.5	N/A	5.0	8.0
27	2	518	7.35	518	7.35	345.0	4.90	5.0	8.0
6	3	394	5.43	526	7.26	176.3	2.43	5.0	8.0
19	4	343	4.81	366	5.13	150.9	2.11	5.0	8.0
5	5	315	3.93	334	4.17	111.1	1.39	3.0	4.7
11	6	305	4.35	387	5.53	228.5	3.26	5.0	8.0
15	7	302	3.72	334	4.11	216.4	2.66	5.0	6.0
25	8	295	N/A	526	N/A	168.4	N/A	5.0	8.0
14	9	262	3.56	262	3.56	144.8	1.96	5.0	16.0
4	10	260	3.38	260	3.38	161.5	2.10	5.0	16.0
28	11	247	3.70	329	4.94	315.9	4.74	5.0	8.0
2	12	233	3.41	233	3.41	70.6	1.03	5.0	3.0
21	13	220	3.40	277	4.27	68.1	1.05	5.0	8.0
17	14	219	2.70	219	2.70	49.2	0.61	5.0	8.5
23	15	206	2.77	208	2.78	74.7	1.00	5.0	8.0
26	16	171	3.00	260	4.54	185.1	3.24	5.0	8.0
12	17	168	2.69	198	3.16	164.6	2.63	5.0	8.0
20	18	165	2.40	165	2.40	237.3	3.47	5.0	8.0
22	19	154	2.30	235	3.51	91.1	1.36	5.0	8.0
1	20	151	2.05	159	2.16	189.4	2.57	5.0	8.0
13	21	143	2.00	215	3.01	41.4	0.58	5.0	8.0
10	22	141	1.91	170	2.31	130.7	1.77	5.0	8.0
3	23	127	1.58	152	1.90	101.1	1.26	5.0	8.0
18	24	125	2.16	156	2.68	12.3	0.21	5.0	8.5
8	25	125	3.22	125	3.22	40.1	1.03	5.0	8.0
9	26	116	1.60	150	2.06	22.1	0.30	5.0	8.0
NOT RANKED:									
16	***	****	N/A	N/A	N/A	152.4	1.72	5.0	8.0
7	***	****	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	MEAN	242.	3.23	283.	3.73	138.1	1.99		
	LOW	116.	1.58	125.	1.90	12.3	0.21		
	LO QTR	151.	2.30	170.	2.70	70.6	1.03		
	MEDIAN	220.	3.22	260.	3.41	144.8	1.96		
	HI QTR	305.	3.72	366.	4.54	189.4	2.66		
	HIGH	585.	7.35	585.	7.35	345.0	4.90		

TABLE III.2

RAIL RECEIVING
SELECTED MEASURES OF PRODUCTIVTY AND OPERATING CHARACTERISTICS
RANKED BY CASES PER MAN-HOUR TOTAL LABOR

COMMODITY - DRY GROCERY

IDENT.	RANK	CASES PER MAN-HOUR TOT LABOR	RAIL RECEIVING DOCK						
			LENGTH (FT)	DEPTH (FT)	% OF WAREHOUSE AREA	CAR POSITIONS	CASES PER POSITION-HOUR	TONS PER POSITION-HOUR	USED FOR STORAGE
24	1	585	200	15	2.00	9	65	N/A	YES
27	2	518	520	25	3.39	15	144	2.04	NO
6	3	394	575	15	3.72	12	92	1.27	NO
19	4	343	979	31	7.12	14	67	0.94	YES
5	5	315	160	8	0.53	N/A	N/A	N/A	NO
11	6	305	600	14	N/A	11	130	1.85	YES
15	7	302	675	40	7.30	12	150	1.85	NO
25	8	295	580	25	2.89	12	88	N/A	YES
14	9	262	N/A	N/A	N/A	N/A	N/A	N/A	YES
4	10	260	614	18	5.57	10	50	0.66	YES
28	11	247	880	25	9.95	15	132	1.97	NO
2	12	233	500	12	6.45	7	168	2.46	YES
21	13	220	200	10	1.15	5	85	1.31	YES
17	14	219	480	13	3.83	8	36	0.44	YES
23	15	206	350	40	6.93	3	156	2.09	YES
26	16	171	N/A	N/A	N/A	7	165	2.89	NO
12	17	168	333	22	4.92	5	206	3.29	YES
20	18	165	630	26	6.52	11	135	1.97	YES
22	19	154	N/A	N/A	N/A	N/A	N/A	N/A	YES
1	20	151	N/A	N/A	N/A	7	169	2.30	NO
13	21	143	200	10	1.56	4	65	0.90	YES
10	22	141	1271	N/A	N/A	20	41	0.55	NO
3	23	127	740	9	3.92	12	53	0.66	YES
18	24	125	210	11	0.96	2	36	0.62	YES
8	25	125	420	12	6.01	7	36	0.92	NO
9	26	116	220	24	5.87	5	28	0.38	NO
NOT RANKED:									
16	***	****	515	32	6.21	8	119	1.34	YES
7	***	****	N/A	N/A	N/A	N/A	N/A	N/A	NO
	MEAN	242.	515.	20.	4.61	9.	101.	1.49	
	LOW	116.	160.	8.	0.53	2.	28.	0.38	
	LC QTR	151.	220.	12.	2.00	7.	53.	0.66	
	MEDIAN	220.	515.	18.	4.92	9.	92.	1.34	
	HI QTR	305.	630.	26.	6.52	12.	150.	2.09	
	HIGH	585.	1271.	40.	9.95	20.	206.	3.29	

TABLE III.3

RAIL RECEIVING
SELECTED MEASURES OF PRODUCTIVITY AND OPERATING CHARACTERISTICS
RANKED BY CASES PER MAN-HOUR TOTAL LABOR

COMMODITY - DRY GROCERY

IDENT.	RANK	CASES PER MAN-HOUR TOT LABOR	CHECKING METHOD	PERCENT UNITIZED	PERFORMANCE STANDARDS	PERFORMANCE STANDARDS ENG. BASED	PERFORMANCE STANDARDS IN CONTRACT	INCENTIVES	SHORT INTERVAL SCHED.
24	1	585	ITEM	100	YES	YES	NO	NO	NO
27	2	518	ITEM	75	NO			NO	NO
6	3	394	ITEM	65	YES	YES	NO	NO	YES
19	4	343	ITEM	74	NO			NO	NO
5	5	315	ITEM	72	NO			NO	NO
11	6	305	ITEM	100	YES	NO	NO	NO	NO
15	7	302	COUNT	50	NO			NO	NO
25	8	295	COUNT	100	NO			NO	NO
14	9	262	ITEM	7	NO			NO	NO
4	10	260	ITEM	62	NO			NO	NO
28	11	247	ITEM	60	YES	YES	NO	NO	YES
2	12	233	COUNT	78	YES	NO	NO	NO	NO
21	13	220	ITEM	90	YES	YES	NO	NO	NO
17	14	219	ITEM	41	YES	NO	NO	NO	NO
23	15	206	ITEM	100	YES	YES	NO	NO	NO
26	16	171	COUNT	86	YES	NO	NO	NO	NO
12	17	168	ITEM	91	NO			NO	YES
20	18	165	ITEM	89	NO			NO	NO
22	19	154	COUNT	56	YES	YES	NO	NO	NO
1	20	151	ITEM	55	YES	NO	YES	NO	NO
13	21	143	ITEM	61	YES	YES	NO	NO	NO
10	22	141	ITEM	52	YES	YES	NO	NO	NO
3	23	127	ITEM	85	NO			NO	NO
18	24	125	ITEM	0	NO			NO	NO
8	25	125	ITEM	50	YES	NO	NO	NO	NO
9	26	116	ITEM	0	YES	NO	N/A	NO	NO
NOT RANKED:									
16	***	****	ITEM	75	YES	NO	NO	NO	NO
7	***	****	N/A	N/A	NO			NO	NO

MEAN	242.	67.
LOW	116.	0.
LC QTR	151.	55.
MEDIAN	220.	74.
HI QTR	305.	89.
HIGH	585.	100.

TABLE III.4

RAIL RECEIVING
SELECTED MEASURES OF PRODUCTIVTY AND OPERATING CHARACTERISTICS
RANKED BY CASES PER MAN-HOUR TOTAL LABOR

COMMODITY - DRY GROCERY

IDENT.	RNK	CASES PER MAN-HOUR TOT LABOR	EMPLOYEES PER SUPER.	O/T HOURS (% OF TOTAL)
24	1	585	N/A	2.5
27	2	518	4.2	9.3
6	3	394	3.0	2.7
19	4	343	4.9	0.0
5	5	315	8.8	77.3
11	6	305	6.3	1.1
15	7	302	4.1	7.8
25	8	295	2.3	5.3
14	9	262	6.3	2.9
4	10	260	2.6	2.4
28	11	247	6.4	0.0
2	12	233	8.7	13.2
21	13	220	1.9	0.3
17	14	219	2.8	0.0
23	15	206	18.1	0.0
26	16	171	10.8	7.9
12	17	168	6.1	0.2
20	18	165	9.0	3.6
22	19	154	7.6	8.1
1	20	151	26.1	15.9
13	21	143	7.2	1.2
10	22	141	5.8	1.4
3	23	127	15.0	6.5
18	24	125	49.1	0.0
8	25	125	4.0	N/A
9	26	116	5.9	0.0
NOT RANKED:				
16	***	****	N/A	N/A
7	***	****	N/A	N/A
	MEAN	242.	9.1	6.8
	LOW	116.	1.9	0.0
	LO QTR	151.	4.0	0.0
	MEDIAN	220.	6.3	2.5
	HI QTR	305.	9.0	7.9
	HIGH	585.	49.1	77.3

TABLE IV.1

STORING - MOVING STOCK FROM RECEIVING TO STORAGE OR SELECTION SLOTS
SELECTED MEASURES OF PRODUCTIVTY AND OPERATING CHARACTERISTICS
RANKED BY UNITS PER MAN-HOUR DIRECT LABOR

COMMODITY - DRY GROCERY

IDENT.	RANK	UNITS PER MAN-HOUR DIR LABOR	TONS PER MAN-HOUR DIR LABOR	UNITS (X1000)	TONS (X1000)	PALLETS (X1000)	UNITS PER PALLET	OPERATING SCHEDULE FROM TRUCK DAYS	OPERATING SCHEDULE FROM TRUCK HOURS	OPERATING SCHEDULE FROM RAIL DAYS	OPERATING SCHEDULE FROM RAIL HOURS
27	1	1725	24.47	1380.2	19.58	34.5	40	5.0	8.0	5.0	8.0
9	2	1033	13.69	208.2	2.76	N/A	N/A	5.0	8.0	5.0	8.0
16	3	993	11.17	916.1	10.31	19.5	47	5.0	8.0	5.0	8.0
1	4	916	13.22	1015.3	14.65	27.8	36	5.0	8.0	5.0	16.0
18	5	804	10.45	786.8	10.23	18.4	43	5.0	10.5	5.0	8.5
8	6	616	9.15	277.2	4.12	5.5	50	5.0	8.0	5.0	8.0
2	7	598	7.09	461.5	5.47	11.6	40	5.0	8.0	5.0	3.0
12	8	587	7.78	788.3	10.45	13.5	58	5.0	8.0	5.0	8.0
13	9	585	6.69	201.4	2.30	5.0	41	5.0	8.0	5.0	8.0
20	10	578	7.59	1084.0	14.25	28.5	38	5.0	16.0	5.0	8.0
26	11	504	8.82	952.2	16.66	15.9	60	5.0	24.0	5.0	16.0
11	12	475	6.78	1433.1	20.47	35.8	40	5.0	9.0	5.0	8.0
28	13	451	6.76	1263.8	18.96	31.6	40	5.0	24.0	5.0	16.0
22	14	448	6.12	416.2	5.69	11.2	37	5.0	8.0	5.0	8.0
21	15	394	5.48	328.7	4.58	9.4	35	5.0	8.0	5.0	8.0
10	16	389	5.00	932.9	12.00	26.5	35	5.0	16.0	5.0	8.0
6	17	370	4.89	373.7	4.94	10.7	35	5.0	8.0	5.0	8.0
24	18	363	N/A	530.7	N/A	8.6	62	5.0	12.0	5.0	8.0
15	19	335	4.25	1081.9	13.73	N/A	N/A	5.0	8.0	5.0	8.0
14	20	324	4.27	525.5	6.92	11.3	47	5.0	16.0	5.0	16.0
3	21	293	3.64	558.8	6.94	18.6	30	5.0	8.0	5.0	8.0
5	22	276	3.45	739.0	9.24	14.8	50	5.0	5.4	3.0	1.3
19	23	275	3.85	1056.5	14.79	26.4	40	5.0	8.0	5.0	8.0
4	24	201	2.62	960.3	12.48	21.3	45	5.0	9.0	5.0	16.0
NOT RANKED:											
25	***	****	N/A	519.4	N/A	N/A	N/A	6.0	12.0	5.0	8.0
17	***	****	N/A	N/A	N/A	13.2	N/A	6.0	10.0	5.0	8.5
23	***	****	N/A	N/A	N/A	18.9	N/A	5.0	6.0	5.0	8.0
7	***	****	N/A	N/A	N/A	N/A	N/A	5.0	8.0	N/A	N/A
	MEAN	564.	7.71	761.3	10.50	18.5	43.				
	LOW	201.	2.62	201.4	2.30	5.0	30.				
	LO QTR	363.	4.27	461.5	5.47	11.2	37.				
	MEDIAN	475.	6.76	788.3	10.31	18.4	40.				
	HI QTR	616.	9.15	1056.5	14.65	27.8	50.				
	HIGH	1725.	24.47	1433.1	20.47	35.8	62.				

TABLE IV.2 STORING - MOVING STOCK FROM RECEIVING TO STORAGE OR SELECTION SLOTS
SELECTED MEASURES OF PRODUCTIVTY AND OPERATING CHARACTERISTICS
RANKED BY UNITS PER MAN-HOUR DIRECT LABOR

COMMODITY - DRY GROCERY

IDENT.	RANK	UNITS PER MAN-HOUR DIR LABOR	MOVEMENT METHOD: 1 LIFT HAULS AND STORES; 2 TRANSPORTER HAULS LIFT STORES; 3 AUTOMATED FROM DOCK LIFT STORES; 4 TOTALLY AUTOMATED		STORAGE LOCATION SELECTION	AISLE WIDTH (FT.)	STORAGE HEIGHT (FT.)	STORAGE CAPACITY UTILIZATION (%)	STORAGE DENSITY (UNITS PER SQ FOOT)
			TRUCK	RAIL					
27	1	1725	2	2	SLOT 1ST THEN RESERVE	12.0	18.0	95.1	4.3
9	2	1033	2	2	SLOT 1ST THEN RESERVE	N/A	24.0	N/A	N/A
16	3	993	1	1	ON-LINE COMPUTER	12.0	20.0	106.5	9.1
1	4	916	1	1	SLOT 1ST THEN RESERVE	12.0	22.0	115.0	3.9
18	5	804	2	1	SLOT 1ST THEN RESERVE	12.0	26.0	90.1	4.6
8	6	616	2	2	SLOT 1ST THEN RESERVE	8.0	16.0	79.9	8.6
2	7	598	2	2	SLOT 1ST THEN RESERVE	8.5	18.0	101.5	6.4
12	8	587	1	1	SLOT 1ST THEN RESERVE	11.5	18.0	52.0	6.9
13	9	585	1	1	SLOT 1ST THEN RESERVE	10.0	16.0	87.1	2.1
20	10	578	1	1	SLOT 1ST THEN RESERVE	9.5	16.0	78.5	5.3
26	11	504	1	1	SLOT 1ST THEN RESERVE	12.0	25.0	96.0	6.6
11	12	475	1	1	SLOT 1ST THEN RESERVE	12.0	21.0	90.2	N/A
28	13	451	OTHER	OTHER	SLOT 1ST THEN RESERVE	12.5	25.0	81.3	12.1
22	14	448	2	2	SLOT 1ST THEN RESERVE	15.0	18.0	99.2	4.1
21	15	394	2	2	SLOT 1ST THEN RESERVE	10.0	17.0	97.4	2.8
10	16	389	2	2	OTHER	9.5	14.0	91.2	4.6
6	17	370	2	2	SLOT 1ST THEN RESERVE	12.0	15.0	99.7	3.7
24	18	363	2	N/A	SLOT 1ST THEN RESERVE	10.0	20.0	N/A	N/A
15	19	335	1	1	ON-LINE COMPUTER	18.0	20.0	79.3	5.4
14	20	324	2	2	SLOT 1ST THEN RESERVE	12.0	12.0	115.0	7.9
3	21	293	2	2	SLOT 1ST THEN RESERVE	9.0	19.0	89.5	5.4
5	22	276	2	2	SLOT 1ST THEN RESERVE	7.0	14.0	111.0	5.0
19	23	275	2	2	SLOT 1ST THEN RESERVE	12.0	30.0	99.3	5.9
4	24	201	2	2	SLOT 1ST THEN RESERVE	11.0	16.0	88.6	9.0
NOT RANKED:									
25	***	****	1	1	ON-LINE COMPUTER	11.0	23.0	124.8	N/A
17	***	****	1	1	SLOT 1ST THEN RESERVE	10.0	24.0	35.7	2.6
23	***	****	2	2	SLOT 1ST THEN RESERVE	10.0	16.0	93.1	N/A
7	***	****	2	N/A	OTHER	12.0	26.0	94.8	12.3
	MEAN	564.				11.1	19.6	92.0	6.0
	LOW	201.				7.0	12.0	35.7	2.1
	LO QTR	363.				10.0	16.0	87.1	4.1
	MEDIAN	475.				11.5	19.0	94.8	5.4
	HI QTR	616.				12.0	24.0	101.5	7.9
	HIGH	1725.				18.0	30.0	124.8	12.3

TABLE IV.3 STORING - MOVING STOCK FROM RECEIVING TO STORAGE OR SELECTION SLOTS
SELECTED MEASURES OF PRODUCTIVITY AND OPERATING CHARACTERISTICS
RANKED BY UNITS PER MAN-HOUR DIRECT LABOR
COMMODITY - DRY GROCERY

IDENT.	RANK	UNITS PER MAN-HOUR TOT LABOR	OUTSIDE STORAGE USED	PERFORMANCE STANDARDS			INCEN-TIVES	SHORT INTERVAL SCHED.	EMPLOYEES PER SUPER.	O/T HOURS (% OF TOTAL)
				STANDARDS	ENG. BASED	IN CONTRACT				
27	1	1725	YES	NO			NO	NO	6.9	6.4
9	2	1033	NO	YES	NO	N/A	NO	NO	18.1	2.2
16	3	993	NO	YES	YES	NO	NO	NO	10.2	14.8
1	4	916	NO	NO			NO	NO	12.9	14.5
18	5	804	NO	NO			NO	NO	12.0	5.5
8	6	616	NO	YES	NO	NO	NO	NO	15.4	N/A
2	7	598	NO	YES	NO	NO	NO	NO	38.6	1.7
12	8	587	YES	NO			NO	YES	7.7	3.4
13	9	585	NO	NO			NO	NO	14.9	0.0
20	10	578	NO	NO			NO	NO	23.6	18.6
26	11	504	YES	YES	NO	NO	NO	NO	13.2	12.0
11	12	475	YES	NO			NO	NO	32.9	1.7
28	13	451	NO	NO			NO	NO	11.7	0.0
22	14	448	NO	NO			NO	NO	18.7	7.0
21	15	394	NO	NO			NO	NO	10.5	3.7
10	16	389	YES	YES	NO	NO	NO	NO	18.6	6.0
6	17	370	NO	YES	YES	NO	NO	NO	22.9	4.3
24	18	363	NO	YES	YES	NO	NO	NO	16.5	0.0
15	19	335	YES	NO			NO	NO	13.8	7.6
14	20	324	NO	NO			NO	NO	26.8	23.5
3	21	293	NO	NO			NO	NO	44.3	8.3
5	22	276	NO	NO			NO	NO	N/A	20.5
19	23	275	YES	NO			NO	NO	72.1	1.0
4	24	201	YES	NO			NO	NO	N/A	5.5
NOT RANKED:										
25	***	****	YES	YES	NO	NO	NO	YES	N/A	N/A
17	***	****	NO	YES	NO	NO	NO	NO	8.2	0.0
23	***	****	NO	YES	NO	NO	NO	NO	10.5	6.3
7	***	****	NO	NO			NO	NO	N/A	N/A
	MEAN	564.							20.0	7.0
	LOW	201.							6.9	0.0
	LO QTR	363.							11.7	1.7
	MEDIAN	475.							15.4	5.5
	HI QTR	616.							23.6	12.0
	HIGH	1725.							72.1	23.5

TABLE V.1

REPLENISHMENT - MOVING STOCK FROM STORAGE TO SELECTION SLOTS
SELECTED MEASURES OF PRODUCTIVTY AND OPERATING CHARACTERISTICS
RANKED BY UNITS PER MAN-HOUR DIRECT LABOR

COMMODITY - DRY GROCERY

IDENT.	RANK	UNITS PER MAN-HOUR DIR LABOR	TONS PER MAN-HOUR DIR LABOR	UNITS (X1000)	TONS (X1000)	PALLETS (X1000)	UNITS PER PALLET	OPER. SCHEDULE DAYS	OPER. SCHEDULE HOURS
1	1	948	12.90	903.7	12.30	27.10	33	5.0	16.0
8	2	825	9.22	138.6	1.55	2.77	50	5.0	8.0
18	3	804	5.82	1322.1	9.58	22.06	60	5.0	8.5
22	4	803	8.39	517.2	5.40	12.93	40	5.0	8.0
16	5	674	8.94	756.5	10.04	15.13	50	5.0	8.0
19	6	636	8.90	1682.4	23.55	42.06	40	5.0	24.0
20	7	586	6.71	1114.6	12.77	25.09	44	5.0	8.0
27	8	546	7.55	1380.2	19.07	34.50	40	5.3	24.0
26	9	531	9.29	953.9	16.69	15.90	60	5.0	16.0
21	10	522	5.36	442.4	4.54	8.82	50	5.0	8.0
13	11	497	5.34	273.7	2.94	6.64	41	5.0	12.0
25	12	480	N/A	1729.1	N/A	35.58	49	7.0	16.0
15	13	457	6.05	748.5	9.92	N/A	N/A	5.0	4.0
12	14	448	5.94	771.8	10.24	12.86	60	5.0	24.0
24	15	357	N/A	420.2	N/A	6.89	61	5.0	8.0
28	16	338	5.07	947.8	14.22	23.70	40	5.0	24.0
9	17	332	5.16	124.9	1.94	N/A	N/A	5.0	8.0
3	18	276	3.30	35.6	0.43	1.19	30	5.0	8.0
10	19	273	3.29	971.8	11.72	26.80	36	5.0	16.0
6	20	195	2.03	249.1	2.59	7.12	35	5.0	8.0
14	21	81	1.06	427.6	5.56	9.66	44	5.0	16.0
NOT RANKED:									
17	***	****	N/A	N/A	N/A	13.50	N/A	6.0	10.0
5	***	****	N/A	N/A	N/A	N/A	N/A	5.0	15.6
4	***	****	N/A	N/A	N/A	N/A	N/A	6.0	16.0
23	***	****	N/A	N/A	N/A	8.83	N/A	5.0	8.0
11	***	****	N/A	N/A	N/A	N/A	N/A	5.3	24.0
2	***	****	N/A	N/A	N/A	9.84	N/A	5.0	8.0
7	***	****	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MEAN		505.	6.33	757.7	9.21	17.73	45.		
LOW		81.	1.06	35.6	0.43	1.19	30.		
LC QTR		332.	5.07	273.7	2.94	7.12	40.		
MEDIAN		497.	5.94	756.5	9.92	15.13	44.		
HI QTR		674.	8.90	1114.6	12.77	26.80	50.		
HIGH		948.	12.90	1729.1	23.55	42.06	61.		

TABLE V.2

REPLENISHMENT - MOVING STOCK FROM STORAGE TO SELECTION SLOTS
SELECTED MEASURES OF PRODUCTIVTY AND OPERATING CHARACTERISTICS
RANKED BY UNITS PER MAN-HOUR DIRECT LABOR

COMMODITY - DRY GROCERY

IDENT.	RANK	UNITS PER MAN-HOUR DIR LABOR	RATIO: UNITS REPLENISHED/ UNITS STORED	REPLENISHMENT METHOD	SLOTTING PRIORITIES A-FAM. GROUP B-MIN. DAMAGE C-MAX. CUBE D-MAX. HIT FREQ. E-MIN. REPLENISHMENT HANDLING 1	2	3	4	5
1	1	948	0.89	OPERATOR JUDGEMENT	E	B	C	D	A
8	2	825	0.50	OPERATOR JUDGEMENT	D	E	A	B	C
18	3	804	1.68	OPERATOR JUDGEMENT	A	E	B	C	D
22	4	803	1.24	OPERATOR JUDGEMENT	B	E	A	D	C
16	5	674	0.83	COMPUTER SCHEDULE	A	D	C	B	E
19	6	636	1.59	OTHER	D	E	B	C	A
20	7	586	1.03	OPERATOR JUDGEMENT	D	C	A	E	B
27	8	546	1.00	OPERATOR JUDGEMENT	D	B	E	C	A
26	9	531	1.00	OPERATOR JUDGEMENT	A	B	E	D	C
21	10	522	1.35	OPERATOR JUDGEMENT	B	E	A	C	D
13	11	497	1.36	OPERATOR JUDGEMENT	E	D	A	C	B
25	12	480	3.33	COMPUTER SCHEDULE	A	C	E	D	B
15	13	457	0.69	COMPUTER SCHEDULE	C	E	B	D	A
12	14	448	0.98	OPERATOR JUDGEMENT	A	C	E	B	D
24	15	357	0.79	OPERATOR JUDGEMENT	C	E	B	A	D
28	16	338	0.75	OPERATOR JUDGEMENT	D	B	E	A	C
9	17	332	0.60	OPERATOR JUDGEMENT	C	E	B	D	A
3	18	276	0.06	OPERATOR JUDGEMENT	D	C	E	B	A
10	19	273	1.04	COMPUTER SCHEDULE	A	D	E	C	B
6	20	195	0.67	OPERATOR JUDGEMENT	C	B	E	A	D
14	21	81	0.81	OPERATOR JUDGEMENT	A	D	E	B	C
NOT RANKED:									
17	***	****	N/A	OPERATOR JUDGEMENT	D	E	A	B	C
5	***	****	N/A	OPERATOR JUDGEMENT	E	A	B	C	D
4	***	****	N/A	OPERATOR JUDGEMENT	A	C	B	D	E
23	***	****	N/A	OPERATOR JUDGEMENT	A	B	D	C	E
11	***	****	N/A	OPERATOR JUDGEMENT	C	A	B	E	D
2	***	****	N/A	OPERATOR JUDGEMENT	C	E	D	A	B
7	***	****	N/A	OPERATOR JUDGEMENT	A	B	E	D	C
	MEAN	505.	1.06						
	LOW	81.	0.06						
	LC QTR	332.	0.69						
	MEDIAN	497.	0.98						
	HI QTR	674.	1.35						
	HIGH	948.	3.33						

TABLE V.3

REPLENISHMENT - MOVING STOCK FROM STORAGE TO SELECTION SLOTS
SELECTED MEASURES OF PRODUCTIVITY AND OPERATING CHARACTERISTICS
RANKED BY UNITS PER MAN-HOUR DIRECT LABOR

COMMODITY - DRY GROCERY

IDENT.	RANK	UNITS PER MAN-HOUR DIR LABOR	PERFORMANCE STANDARDS			INCEN-TIVES	SHORT INTERVAL SCHED.	EMPLOYEES PER SUPER.	O/T HOURS (% OF TOTAL)
			STANDARDS	ENG. BASED	IN CONTRACT				
1	1	948	NO			NO	NO	13.9	1.7
8	2	825	YES	NO	NO	NO	NO	15.4	N/A
18	3	804	NO			NO	NO	12.0	6.7
22	4	803	NO			NO	NO	18.7	7.2
16	5	674	YES	YES	NO	NO	NO	10.2	21.8
19	6	636	NO			NO	NO	72.1	9.9
20	7	586	NO			NO	NO	23.6	15.2
27	8	546	NO			NO	NO	6.9	6.4
26	9	531	YES	NO	NO	NO	NO	13.2	12.0
21	10	522	NO			NO	NO	10.5	3.2
13	11	497	NO			NO	NO	14.9	0.0
25	12	480	YES	NO	NO	NO	YES	N/A	22.1
15	13	457	NO			NO	NO	13.8	25.2
12	14	448	NO			NO	YES	7.7	0.0
24	15	357	YES	YES	NO	NO	NO	16.5	0.0
28	16	338	NO			NO	NO	11.7	0.0
9	17	332	YES	NO	N/A	NO	NO	18.1	3.2
3	18	276	NO			NO	NO	44.3	7.0
10	19	273	YES	NO	NO	NO	NO	18.6	4.9
6	20	195	YES	YES	NO	NO	NO	22.9	6.3
14	21	81	NO			NO	NO	26.8	12.2
NOT RANKED:									
17	***	****	YES	NO	NO	NO	NO	8.2	0.0
5	***	****	NO			NO	NO	N/A	N/A
4	***	****	NO			NO	NO	N/A	N/A
23	***	****	YES	NO	NO	NO	NO	10.5	5.3
11	***	****	NO			NO	NO	32.9	5.4
2	***	****	YES	NO	NO	NO	NO	38.6	1.7
7	***	****	NO			NO	NO	N/A	0.0
	MEAN	505.						20.0	7.1
	LOW	81.						6.9	0.0
	LC QTR	332.						11.7	0.0
	MEDIAN	497.						15.4	5.4
	HI QTR	674.						23.6	12.0
	HIGH	948.						72.1	25.2

TABLE VI.1

ORDER SELECTION
SELECTED MEASURES OF PRODUCTIVITY AND OPERATING CHARACTERISTICS
RANKED BY UNITS PER MAN-HOUR DIRECT LABOR

COMMODITY - DRY GROCERY

IDENT.	RANK	UNITS PER MAN-HOUR DIR LABOR	TONS PER MAN-HOUR DIR LABOR	UNITS (X1000)	TONS (X1000)	OPER. SCHEDULE DAYS	OPER. SCHEDULE HOURS	SLOT TYPE	% OF TOTAL CASES SELECTED CONVENTIONALLY
7	1	224	3.59	538.5	8.62	5.0	8.0	FIXED	100.0
21	2	199	2.04	442.4	4.54	5.0	8.0	FIXED	100.0
22	3	190	1.99	517.2	5.40	5.0	8.0	FIXED	100.0
26	4	190	3.32	953.9	16.69	5.0	16.0	FIXED	100.0
15	5	188	2.49	1025.3	13.59	5.0	8.0	FIXED	100.0
8	6	183	2.04	350.9	3.92	5.0	8.0	FIXED	100.0
23	7	178	2.04	654.9	7.50	5.0	8.0	FIXED	100.0
11	8	173	2.47	1273.8	18.20	6.0	24.0	FIXED	100.0
19	9	170	2.38	1151.3	16.12	5.0	16.0	FIXED	100.0
6	10	164	1.71	755.5	7.87	5.0	8.0	FIXED	100.0
2	11	155	1.55	582.5	5.81	5.0	8.0	FIXED	100.0
27	12	152	2.11	1255.1	17.34	5.3	24.0	FIXED	100.0
3	13	150	1.79	583.9	7.00	5.0	8.0	FIXED	100.0
17	14	147	1.92	240.0	3.13	6.0	10.0	FIXED & FLOAT.	100.0
13	15	147	1.58	312.1	3.35	5.0	12.0	FIXED	100.0
20	16	144	1.65	1114.6	12.77	5.0	8.0	FIXED	100.0
1	17	142	1.94	873.3	11.89	5.0	16.0	FIXED	100.0
4	18	139	1.80	909.2	11.71	6.0	16.0	FIXED	94.9
12	19	137	1.81	771.8	10.24	5.0	24.0	FIXED	100.0
16	20	131	1.74	902.3	11.97	5.0	8.0	FIXED	100.0
10	21	128	1.54	1163.5	14.03	5.0	8.0	FIXED	100.0
28	22	124	1.85	1274.1	19.11	5.0	16.0	FIXED	100.0
14	23	106	1.38	1142.2	14.85	5.0	16.0	FIXED	100.0
NOT RANKED:									
25	***	****	N/A	2248.6	N/A	7.0	16.0	FIXED	55.0
9	***	****	2.76	182.1	2.83	5.0	8.0	FIXED & FLOAT.	14.3
5	***	****	2.29	668.6	8.36	5.0	24.0	FIXED	20.0
18	***	****	1.60	1422.8	10.31	5.0	8.5	FIXED	41.0
24	***	****	N/A	481.6	N/A	5.0	8.0	FIXED	100.0
	MEAN	159.	2.03	816.9	10.68				90.2
	LOW	106.	1.38	240.0	3.13				14.3
	LO QTR	139.	1.71	538.5	5.81				100.0
	MEDIAN	152.	1.92	873.3	11.71				100.0
	HI QTR	183.	2.11	1142.2	14.85				100.0
	HIGH	224.	3.59	1274.1	19.11				100.0

TABLE VI.2

ORDER SELECTION
SELECTED MEASURES OF PRODUCTIVTY AND OPERATING CHARACTERISTICS
RANKED BY UNITS PER MAN-HOUR DIRECT LABOR

COMMODITY - DRY GROCERY

IDENT.	RANK	UNITS PER MAN-HOUR DIR LABOR	SELECTION DOCUMENTS		BATCH PICK	MAXIMUM BATCH	BULK SELECTOR	MIN. BULK QUANTITY	WAREHOUSE CUTOFFS (%)
			SLOT SEQ.	CASE LABELS					
7	1	224	YES	YES	N/A	N/A	NO		6.00
21	2	199	YES	YES	N/A	N/A	NO		7.29
22	3	190	YES	YES	N/A	N/A	NO		8.80
26	4	190	YES	YES	N/A	N/A	NO		N/A
15	5	188	YES	NO	N/A	N/A	NO		N/A
8	6	183	YES	YES	N/A	N/A	NO		7.04
23	7	178	YES	YES	N/A	N/A	NO		8.28
11	8	173	YES	YES	N/A	N/A	YES	15	0.00
19	9	170	YES	NO	N/A	N/A	YES	PALLET	N/A
6	10	164	YES	YES	N/A	N/A	NO		5.03
2	11	155	YES	YES	N/A	N/A	NO		3.18
27	12	152	YES	YES	N/A	N/A	NO		0.81
3	13	150	YES	YES	N/A	N/A	NO		8.21
17	14	147	YES	YES	N/A	N/A	NO		0.40
13	15	147	YES	YES	N/A	N/A	NO		3.42
20	16	144	YES	YES	N/A	N/A	YES	PALLET	9.08
1	17	142	YES	NO	N/A	N/A	NO		1.44
4	18	139	YES	YES	N/A	N/A	NO		0.00
12	19	137	YES	YES	N/A	N/A	YES	25	0.17
28	20	131	YES	YES	N/A	N/A	NO		0.00
10	21	128	YES	YES	N/A	N/A	NO		1.19
25	22	124	YES	NO	N/A	N/A	NO		0.19
14	23	106	YES	YES	N/A	N/A	NO		8.59
NOT RANKED:									
9	***	****	YES	YES	N/A	N/A	YES		0.74
16	***	****	YES	YES	N/A	N/A	YES	15	N/A
5	***	****	YES	NO	N/A	N/A	NO		0.24
18	***	****	YES	NO	N/A	N/A	NO		9.47
24	***	****	YES	YES	N/A	N/A	NO		N/A
	MEAN	159.				N/A		15.	3.89
	LOW	106.				N/A		15.	0.00
	LO QTR	139.				N/A		15.	0.24
	MEDIAN	152.				N/A		15.	3.18
	HI QTR	183.				N/A		25.	8.21
	HIGH	224.				N/A		25.	9.47

TABLE VI.3

ORDER SELECTION
SELECTED MEASURES OF PRODUCTIVITY AND OPERATING CHARACTERISTICS
RANKED BY UNITS PER MAN-HOUR DIRECT LABOR

COMMODITY - DRY GROCERY

IDENT.	RANK	UNITS PER MAN-HOUR DIR LABOR	ITEMS SEGREGATED: FAST MOVERS	ITEMS SEGREGATED: SLOW MOVERS	AISLE WIDTH	SELECTION AREA STORAGE HEIGHT	PERFORMANCE STANDARDS: STANDARDS	PERFORMANCE STANDARDS: ENG. BASED	PERFORMANCE STANDARDS: IN CONTRACT	INCENTIVES
7	1	224	YES	YES	12.0	21.0	YES	NO	N/A	NO
21	2	199	YES	YES	10.0	17.0	YES	YES	NO	NO
22	3	190	YES	YES	10.0	17.0	YES	YES	NO	NO
26	4	190	NO	YES	12.0	25.0	YES	NO	NO	NO
15	5	186	YES	YES	18.0	20.0	YES	NO	YES	NO
8	6	183	NO	NO	8.0	16.0	YES	YES	NO	NO
23	7	178	YES	YES	10.0	16.0	YES	YES	NO	NO
11	8	173	NO	NO	12.0	21.0	YES	NO	NO	NO
19	9	170	YES	YES	12.0	25.0	YES	YES	NO	NO
6	10	164	YES	YES	10.0	15.0	YES	YES	NO	NO
2	11	155	YES	YES	8.5	18.0	YES	YES	NO	NO
27	12	152	YES	YES	12.0	18.0	YES	NO	NO	NO
3	13	150	YES	YES	9.0	19.0	YES	YES	NO	NO
17	14	147	YES	YES	10.0	24.0	YES	NO	NO	NO
13	15	147	YES	NO	10.0	16.0	YES	YES	NO	NO
20	16	144	YES	YES	9.5	16.0	YES	YES	NO	NO
1	17	142	NO	NO	12.0	19.0	YES	NO	YES	NO
4	18	139	YES	YES	11.0	19.5	YES	YES	N/A	NO
12	19	137	NO	YES	11.5	18.0	YES	NO	NO	NO
16	20	131	YES	YES	12.0	20.0	YES	YES	NO	NO
10	21	128	YES	YES	9.5	14.0	YES	YES	NO	NO
28	22	124	YES	YES	12.5	25.0	YES	YES	NO	NO
14	23	106	YES	NO	12.0	18.0	YES	YES	NO	NO
NOT RANKED:										
25	***	****	NO	NO	11.0	23.0	YES	YES	NO	NO
9	***	****	NO	NO	N/A	24.0	YES	NO	N/A	YES
5	***	****	NO	NO	7.0	14.0	YES	NO	NO	NO
18	***	****	NO	NO	12.0	17.0	YES	YES	NO	NO
24	***	****	YES	YES	10.0	20.0	YES	YES	NO	NO
	MEAN	159.			10.9	19.1				
	LOW	106.			7.0	14.0				
	LC QTR	139.			10.0	17.0				
	MEDIAN	152.			11.0	19.0				
	HI QTR	183.			12.0	21.0				
	HIGH	224.			18.0	25.0				

TABLE VI.4

ORDER SELECTION
SELECTED MEASURES OF PRODUCTIVTY AND OPERATING CHARACTERISTICS
RANKED BY UNITS PER MAN-HOUR DIRECT LABOR

COMMODITY - DRY GROCERY

IDENT.	RANK	UNITS PER MAN-HOUR DIR LABOR	SHORT INTERVAL SCHED.	EMPLOYEES PER SUPER.	C/T HOURS (% OF TOTAL)
7	1	224	NO	1.5	0.0
21	2	199	YES	27.8	1.6
22	3	190	YES	21.7	6.3
26	4	189	NO	14.8	12.0
15	5	187	YES	7.8	25.2
8	6	182	YES	12.0	N/A
23	7	177	YES	22.3	9.7
11	8	172	YES	25.1	13.6
19	9	169	NO	13.3	12.6
6	10	164	YES	30.7	1.4
2	11	155	YES	53.7	0.5
27	12	152	NO	68.6	30.4
3	13	149	YES	34.9	8.9
17	14	146	NO	3.1	0.0
13	15	146	YES	13.3	7.8
20	16	143	YES	48.4	10.8
1	17	142	NO	38.4	8.0
4	18	139	YES	27.2	3.1
12	19	136	YES	17.6	1.3
16	20	131	YES	N/A	10.8
10	21	127	YES	28.4	9.3
28	22	123	YES	16.1	0.0
14	23	105	YES	36.4	2.7
NOT RANKED:					
25	***	****	YES	6.4	19.6
9	***	****	NO	9.7	0.7
5	***	****	NO	11.4	13.7
18	***	****	YES	17.9	3.4
24	***	****	NO	N/A	N/A
	MEAN	159.		23.4	8.2
	LOW	106.		1.5	0.0
	LO QTR	139.		12.0	1.4
	MEDIAN	152.		21.7	8.0
	HI QTR	183.		34.9	12.6
	HIGH	224.		68.6	30.4

TABLE VII.1

SHIPPING PREPARATION
SELECTED MEASURES OF PRODUCTIVTY AND OPERATING CHARACTERISTICS
RANKED BY UNITS PER MAN-HOUR TOTAL LABOR

COMMODITY - DRY GROCERY

IDENT.	RANK	UNITS PER MAN-HOUR TOT LABOR	TONS PER MAN-HOUR TOT LABOR	UNITS PER MAN-HOUR DIR LABOR	TONS PER MAN-HOUR DIR LABOR	UNITS (X1000)	TONS (X1000)	OPER. SCHEDULE DAYS	OPER. SCHEDULE HOURS
16	1	1880	24.94	1880	24.94	902.3	11.97	5.0	8.0
17	2	1690	22.07	1690	22.07	240.0	3.13	6.0	10.0
2	3	1521	15.17	1541	15.38	582.5	5.81	5.0	8.0
14	4	1322	17.19	1322	17.19	1142.2	14.85	5.0	16.0
6	5	1239	16.88	1355	18.47	577.3	7.87	5.0	8.0
27	6	1239	17.12	1239	17.12	1255.1	17.34	5.3	24.0
21	7	1051	10.72	1103	11.25	444.9	4.54	5.0	8.0
7	8	941	15.06	941	15.06	538.5	8.62	5.0	8.0
25	9	934	N/A	1018	N/A	2248.6	N/A	7.0	20.0
13	10	925	11.35	1549	19.00	273.5	3.35	5.0	12.0
20	11	898	10.29	898	10.29	1114.5	12.77	5.0	8.0
22	12	814	8.51	1071	11.18	517.2	5.40	5.0	8.0
4	13	749	7.47	755	7.53	1154.6	11.51	6.0	16.0
19	14	727	10.18	757	10.60	1151.3	16.12	5.0	16.0
5	15	725	9.07	877	10.97	668.6	8.36	5.0	5.4
8	16	709	7.92	771	8.62	350.9	3.92	5.0	8.0
10	17	706	8.52	827	9.97	1163.5	14.03	5.0	8.0
26	18	706	12.36	815	14.26	953.9	16.69	5.0	16.0
15	19	675	8.94	1461	19.35	1025.3	13.59	5.0	8.0
12	20	511	6.78	676	8.97	771.8	10.24	5.0	24.0
23	21	504	5.77	819	9.38	654.9	7.50	5.0	8.0
3	22	448	6.27	448	6.27	500.0	7.00	5.0	8.0
28	23	367	5.50	796	11.94	1274.1	19.11	5.0	16.0
9	24	341	5.31	341	5.31	182.1	2.83	5.0	8.0
1	25	292	3.96	307	4.17	880.4	11.96	5.0	16.0
18	26	264	3.43	353	4.59	793.9	10.31	5.0	10.5
11	27	120	1.72	124	1.78	1273.8	18.20	6.0	24.0
NOT RANKED:									
24	***	****	N/A	N/A	N/A	481.6	N/A	5.0	8.0

MEAN	826.	10.48	953.	12.14	838.4	10.27
LOW	120.	1.72	124.	1.78	182.1	2.83
LO QTR	504.	6.27	755.	8.62	517.2	5.81
MEDIAN	727.	9.07	877.	11.18	793.9	10.31
HI QTR	1051.	15.17	1322.	17.19	1151.3	14.85
HIGH	1880.	24.94	1880.	24.94	2248.6	19.11

TABLE VII.2

SHIPPING PREPARATION
SELECTED MEASURES OF PRODUCTIVITY AND OPERATING CHARACTERISTICS
RANKED BY UNITS PER MAN-HOUR TOTAL LABOR

COMMODITY - DRY GROCERY

IDENT.	RANK	UNITS PER MAN-HOUR TOT LABOR	SHIPPING DOCK						
			LENGTH (FT)	DEPTH (FT)	% OF WAREHOUSE AREA	DOORS	UNITS PER DOOR-HOUR	TONS PER DOOR-HOUR	USED FOR STORAGE
16	1	1880	40	31	0.47	34	166	2.20	NO
17	2	1690	101	33	2.04	6	167	2.18	NO
2	3	1521	200	12	2.58	9	405	4.04	NO
14	4	1322	N/A	N/A	N/A	19	188	2.44	NO
6	5	1239	177	15	1.14	14	258	3.51	NO
27	6	1239	720	25	4.70	11	223	3.06	NO
21	7	1051	150	10	0.86	6	463	4.73	NO
7	8	941	200	40	8.00	12	280	4.49	NO
25	9	934	630	45	5.66	50	80	N/A	NO
13	10	925	140	49	5.36	13	88	1.07	NO
20	11	898	189	27	2.03	15	464	5.32	NO
22	12	814	141	15	1.80	5	646	6.75	NO
4	13	749	336	46	8.02	19	158	1.58	YES
19	14	727	979	40	9.30	57	63	0.88	YES
5	15	725	120	50	2.48	12	516	6.45	NO
8	16	709	120	20	2.86	14	157	1.75	NO
10	17	706	440	100	12.14	33	220	2.66	NO
26	18	706	N/A	N/A	N/A	18	166	2.90	NO
15	19	675	675	60	10.95	40	160	2.12	NO
12	20	511	333	38	8.50	24	67	0.89	YES
23	21	504	150	40	2.97	11	372	4.26	NO
3	22	448	204	15	1.80	16	195	2.73	NO
28	23	367	370	45	7.93	29	137	2.06	NO
9	24	341	90	90	9.00	6	190	2.95	NO
1	25	292	N/A	N/A	N/A	20	138	1.87	NO
18	26	264	180	25	1.87	16	236	3.07	NO
11	27	120	376	42	N/A	30	74	1.05	NO
NOT RANKED:									
24	***	****	84	64	3.58	12	251	N/A	NO
	MEAN	826.	286.	39.	4.82	20.	233.	2.96	
	LOW	120.	40.	10.	0.47	5.	63.	0.88	
	LO QTR	504.	120.	20.	2.03	12.	157.	1.87	
	MEDIAN	727.	189.	40.	3.58	16.	190.	2.73	
	HI QTR	1051.	376.	49.	8.02	29.	280.	4.26	
	HIGH	1880.	979.	100.	12.14	57.	646.	6.75	

TABLE VII.3

SHIPPING PREPARATION
SELECTED MEASURES OF PRODUCTIVTY AND OPERATING CHARACTERISTICS
RANKED BY UNITS PER MAN-HOUR TOTAL LABOR

COMMODITY - DRY GROCERY

IDENT.	RANK	UNITS PER MAN-HOUR TOT LABOR	SHIP & RECEIVE SAME DOCK	SHIP & RECEIVE SAME TIME	OUT OF TRAILERS	CHECKING METHOD	LOADING DONE BY SEL=SELECTORS SHP=SHIPPING CARTS	PALLETS	DEADPILE	PERCENT UNITIZED
16	1	1880	NO		MONTHLY	OTHER		BOTH	SHP	100.0
17	2	1690	YES	YES	DAILY	SPOT		SEL		100.0
2	3	1521	NO		WEEKLY	SPOT		SEL	SHP	86.0
14	4	1322	NO		DAILY	SPOT		BOTH	SHP	100.0
6	5	1239	NO		MONTHLY	SPOT		SEL	SHP	91.5
27	6	1239	YES	NO	DAILY	OTHER		SHP		100.0
21	7	1051	NO		NEVER	SPOT		BOTH	SHP	95.0
7	8	941	NO		MONTHLY	SPOT		SEL		100.0
25	9	934	YES	NO	WEEKLY	SPOT		BOTH		100.0
13	10	925	YES	NO	NEVER	OTHER		SEL	SHP	97.7
20	11	898	YES	YES	WEEKLY	SPOT		BOTH	SHP	75.7
22	12	814	NO		NEVER	SPOT		SEL	SHP	92.9
4	13	749	YES	NO	DAILY	NONE		SHP	SHP	100.0
19	14	727	YES	NO	NEVER	SPOT	SHP	SHP		100.0
5	15	725	NO		MONTHLY	COUNT		SHP	SHP	40.0
8	16	709	NO		MONTHLY	SPOT		BOTH	SHP	95.0
10	17	706	NO		NEVER	SPOT		SHP	SHP	100.0
26	18	706	NO		WEEKLY	OTHER		SHP		100.0
15	19	675	YES	NO	WEEKLY	SPOT		SHP		100.0
12	20	511	YES	NO	MONTHLY	NONE		BOTH		100.0
23	21	504	NO		NEVER	SPOT		SEL	SHP	95.4
3	22	448	NO		NEVER	OTHER		SHP		100.0
28	23	367	NO		NEVER	SPOT		SHP		100.0
9	24	341	YES	YES	MONTHLY	SPOT		SEL	SHP	14.3
1	25	292	NO		DAILY	SPOT		SHP		100.0
18	26	264	NO		WEEKLY	OTHER		SHP	SHP	66.5
11	27	120	YES	YES	DAILY	SPOT		BOTH	SHP	95.0
NOT RANKED:										
24	***	***	YES	NO	NEVER	SPOT		BOTH		100.0
MEAN		826.								90.9
LOW		120.								14.3
LO QTR		504.								95.0
MEDIAN		727.								100.0
HI QTR		1051.								100.0
HIGH		1880.								100.0

TABLE VII.4

SHIPPING PREPARATION
SELECTED MEASURES OF PRODUCTIVTY AND OPERATING CHARACTERISTICS
RANKED BY UNITS PER MAN-HOUR TOTAL LABOR

COMMODITY - DRY GROCERY

IDENT.	RANK	UNITS PER MAN-HOUR TOT LABOR	LOADING UNIT (% OF TOT. CASES)			PERCENT OF LOADS CONTAINING			
			CARTS	PALLETS	DEADPILE	1 ORDER	2 ORDERS	3 ORDERS	MORE THAN 3 ORDERS
16	1	1880		100.0		67.2	31.9	0.5	0.4
17	2	1690		83.3		31.6			68.4
2	3	1521		86.0	14.0	85.1	9.7	5.2	
14	4	1322	1.3	98.7		82.8	14.1	2.8	0.3
6	5	1239		88.9	11.1	75.0	25.0		
27	6	1239		100.0		80.0	20.0		
21	7	1051		100.0		52.1	45.0	2.5	0.4
7	8	941		100.0		100.0			
25	9	934		100.0		95.1	4.9		
13	10	925		100.0		77.9	18.7	2.0	1.3
20	11	898		98.0	2.0	87.9	12.1		
22	12	814		92.9	7.1	49.5	47.8	2.7	
4	13	749		100.0		54.2	22.9	11.3	11.6
19	14	727	1.0	99.0		97.7	2.3		
5	15	725		60.0	40.0	13.3	80.0	6.7	
8	16	709		100.0		93.0	7.0		
10	17	706		100.0		63.1	35.1	1.6	0.2
26	18	706		100.0		98.6	1.4		
15	19	675				76.4	18.9	4.7	
12	20	511		100.0		94.4	4.8	0.7	0.1
23	21	504		95.4	4.6	68.9	14.3	12.3	4.5
3	22	448		100.0		54.8	43.5	1.7	
28	23	367		100.0		70.5	27.5	1.7	0.3
9	24	341		28.6	71.4	25.0	16.7	22.9	35.4
1	25	292		100.0		90.3	9.7		
18	26	264		66.5	33.5	56.8	39.2	1.9	2.1
11	27	120	5.0	95.0		73.0	13.3	7.9	5.7
NOT RANKED:									
24	***	****		100.0		50.7	37.9	10.5	0.8
	MEAN	826.	0.3	89.0	6.6	70.2	21.6	3.6	4.7
	LOW	120.	0.0	0.0	0.0	13.3	0.0	0.0	0.0
	LO QTR	504.	0.0	92.9	0.0	54.8	9.7	0.0	0.0
	MEDIAN	727.	0.0	100.0	0.0	75.0	18.7	1.7	0.1
	HI QTR	1051.	0.0	100.0	4.6	90.3	35.1	5.2	1.3
	HIGH	1880.	5.0	100.0	71.4	100.0	80.0	22.9	68.4

TABLE VII.5

SHIPPING PREPARATION
SELECTED MEASURES OF PRODUCTIVITY AND OPERATING CHARACTERISTICS
RANKED BY UNITS PER MAN-HOUR TOTAL LABOR

COMMODITY - DRY GROCERY

IDENT.	RANK	UNITS PER MAN-HOUR TOT LABOR	CUSTOMER PROFILE: COOP. SUPERMKT AVG. ORDER SIZE	COOP. SUPERMKT % OF TOTAL UNITS	VOLUN. SUPERS AVG. ORDER SIZE	VOLUN. SUPERS % OF TOTAL UNITS	INDEP. SUPERS AVG. ORDER SIZE	INDEP. SUPERS % OF TOTAL UNITS	NON-SUPERMKT AVG. ORDER SIZE	NON-SUPERMKT % OF TOTAL UNITS
16	1	1880	866	100						
17	2	1690	1667	25			300	50	150	25
2	3	1521	1255	100						
14	4	1322	895	100						
6	5	1239		100						
27	6	1239	598	100						
21	7	1051	1152	100						
7	8	941	1075	100						
25	9	934	1483	100						
13	10	925	941	100						
20	11	898	1147	100						
22	12	814	1231	100						
4	13	749	1046	29	995	51			1613	19	131	1
19	14	727	450	96					178	1	91	3
5	15	725	4458	100						
8	16	709	1015	100						
10	17	706	997	100						
26	18	706	1093	99						1		
15	19	675	1051	100						
12	20	511	1032	100						
23	21	504	1342	100						
3	22	448	1224	100						
18	23	367	1034	100						
9	24	341					55	6	428	94		
1	25	292	1000	100						
28	26	264	852	100						
11	27	120								
NOT RANKED:										
24	***	****	651	100						
	MEAN	826.	1182.	94.	995.	51.	55.	6.	630.	33.	124.	10.
	LOW	120.	450.	25.	995.	51.	55.	6.	178.	1.	91.	1.
	LO QTR	504.	895.	100.	995.	51.	55.	6.	300.	1.	91.	1.
	MEDIAN	727.	1046.	100.	995.	51.	55.	6.	428.	19.	131.	3.
	HI QTR	1051.	1231.	100.	995.	51.	55.	6.	1613.	94.	150.	25.
	HIGH	1880.	4458.	100.	995.	51.	55.	6.	1613.	94.	150.	25.

TABLE VII.6

SHIPPING PREPARATION
SELECTED MEASURES OF PRODUCTIVITY AND OPERATING CHARACTERISTICS
RANKED BY UNITS PER MAN-HOUR TOTAL LABOR

COMMODITY - DRY GROCERY

IDENT.	RANK	UNITS PER MAN-HOUR TOT LABOR	PERFORMANCE STANDARDS	ENG. BASED	IN CONTRACT	INCENTIVES	SHORT INTERVAL SCHED.	EMPLOYEES PER SUPER.	O/T HOURS (% OF TOTAL)
16	1	1880	YES	NO	NO	NO	NO	2.4	15.4
17	2	1690	YES	NO	NO	NO	NO	0.4	0.0
2	3	1521	YES	NO	NO	NO	NO	5.5	2.9
14	4	1322	NO			NO	NO	2.7	7.4
6	5	1239	YES	YES	NO	NO	NO	2.6	9.0
27	6	1239	NO			NO	NO	3.2	9.1
21	7	1051	NO			NO	NO	5.3	2.3
7	8	941	NO			NO	NO	N/A	0.0
25	9	934	NO			NO	NO	4.8	1.7
13	10	925	NO			NO	NO	7.4	14.8
20	11	898	NO			NO	NO	7.8	18.0
22	12	814	NO			NO	NO	4.2	6.7
4	13	749	YES	NO	N/A	NO	NO	1.9	6.0
19	14	727	NO			NO	NO	3.1	8.4
5	15	725	NO			NO	NO	5.8	17.4
8	16	709	YES	NO	NO	NO	NO	3.1	0.0
10	17	706	YES	NO	NO	NO	NO	3.4	12.0
26	18	706	NO			NO	NO	6.1	11.9
15	19	675	NO			NO	YES	4.3	25.2
12	20	511	NO			NO	YES	2.4	2.6
23	21	504	YES	NO	NO	NO	NO	6.5	12.3
3	22	448	NO			NO	NO	7.3	11.7
28	23	367	YES	YES	NO	NO	YES	10.9	0.0
9	24	341	YES	NO	N/A	NO	NO	7.6	0.9
1	25	292	NO			NO	NO	18.9	4.6
18	26	264	NO			NO	NO	14.8	15.1
11	27	120	NO			NO	YES	18.0	1.5
NOT RANKED:									
24	***	****	YES	YES	NO	NO	NO	N/A	N/A
	MEAN	820.						6.2	8.0
	LOW	120.						0.4	0.0
	LC QTR	504.						3.1	1.7
	MEDIAN	727.						5.3	7.4
	HI QTR	1051.						7.6	12.3
	HIGH	1880.						18.9	25.2